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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,538	05/27/2005	Andrew James Goodwin	MSP617NAT2	2274
27305 7590 09/25/2007 HOWARD & HOWARD ATTORNEYS, P.C. THE PINEHURST OFFICE CENTER, SUITE #101 39400 WOODWARD AVENUE BLOOMFIELD HILLS, MI 48304-5151			EXAMINER ZIMMER, MARC S	
			ART UNIT 1712	PAPER NUMBER
			MAIL DATE 09/25/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/510,538

Applicant(s)

GOODWIN ET AL.

Examiner

Marc S. Zimmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 14-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 14-17 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 06/12/07
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 6, and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagata et al., JP 56-166230. They describe a method of making siloxane polymers from a cyclic organosilicon precursor in the presence of a glow discharge low temperature plasma (page 5, paragraph 3 of the translated document). According to page 5, paragraph 6, the precursor may be brought into contact with the plasma as any of a gas-, liquid-, or solid state material.

Concerning claim 10, octamethylcyclotetrasiloxane (used in one of the Examples) has a viscosity within the specified range.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article entitled "Plasma Spray Synthesis of Nanomaterial Powders and Deposits" authored by Karthikeyan et al. and published in *Material Science and*

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*Engineering* (1997), pg 275-286 in view of Bessho, JP 11-198281 (hereinafter '281) and/or JP 11-256338 (hereinafter '338).

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Plasma Spray Synthesis of Nanomaterial Powders and Deposits" authored by Karthikeyen et al. and published in *Material Science and Engineering* (1997), pg 275-286 and Bessho, JP 11-198281 (hereinafter '281) and/or Bessho, JP 11-256338 (hereinafter '338) as applied to claims 1-8 and 11-17 above, and further in view of O'Reilly et al., WO 2002/35576.

It is Applicant's contention that one would not be motivated to replace the high temperature plasma disclosed by *Karthikeyen et al.* with the non-thermal equilibrium plasma disclosed by *Bessho* insofar as *Karthikeyen et al.* implies that high temperatures are needed to evaporate the solvents in which the precursors have been dissolved. The Examiner respectfully disagrees.

In the method disclosed by Bessho, the precursor is introduced as a gas entrained neat sample. In modifying the method disclosed by *Karthikeyen et al.* to exploit the advantages of the non-thermal equilibrium plasma, e.g. significantly lower energy requirements, the skilled artisan would appreciate that the reactants should also be introduced in the same form as is contemplated in *Bessho*. That is to say, one of ordinary skill would understand that the precursor should be introduced as a neat sample per the teachings of Bessho instead of as a solution. In doing so, the problems associated with the incomplete evaporation of a solvent that are documented by *Karthikeyen et al.* are, of course, eliminated.

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The Examiner believes that the skilled artisan would have a reasonable expectation that the proposed modification of the method taught by *Karthikeyen et al.* could be successfully implemented without also modifying the means of precursor addition because the precursors mentioned by *Karthikeyen et al.* are small molecules and, hence, would not be of high viscosity that would make introduction as a spray in a neat form difficult.

In any case, the description on which Applicant relies, would seem to be a part of a broader commentary on proper placement of the collecting surface, not an observation pertaining to the critical nature of the high temperature plasma. If the residence time of the monomer is not sufficiently long, i.e. in those instances where the collecting plate is placed any closer to the area of the apparatus where the precursor is introduced than location C, an adherent coating is obtained instead of a powder.

***Allowable Subject Matter***

Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on June 12, 2007 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

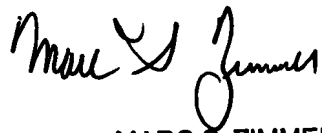
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 19, 2007

  
MARC S. ZIMMER  
PRIMARY EXAMINER